In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-16. (Canceled)

17. (Previously presented) A liquid chromatography setup that includes a chromatographic column through which a mobile phase having at least one component passes as eluent for analysis by a post-column detector, and a post-column analysis system to increase elution time of chromatographic peaks associated with detection by said post-column detector, said post-column analysis system including:

a micro-switching valve unit having an input port coupled to said chromatographic column, said micro-switching valve unit being switchable between a first position in which said eluent flows at a first flow rate to said post-column detector, and a second position in which eluent flow through said chromatographic column is halted and a portion of said eluent within a region of said micro-switching valve unit flows to said post-column detector at a second flow rate that is substantially slower than said first flow rate; and

a secondary pump system, coupled to a portion of said micro-switching valve unit, and operable to contribute to establish said second flow rate when said micro switching valve unit is in said second position;

wherein when said micro switching valve unit is in said second position, said secondary pump system pumps a portion of said eluent retained in a portion of said micro switching valve unit to said post-column detector such that individual detection peaks are input more slowly to said post-column detector;

wherein at least one of said means for selectively passing and halting and said means for substantially reducing contribute to a substantially constant gradient composition during said peak parking mode.

18-20 (Canceled)

21. (Previously presented) A liquid chromatography system comprising a chromatographic column through which an eluent passes for analysis by a post-column detector, a primary pump for pumping the eluent to said chromatographic column at a first flow rate, and an analysis system to increase elution time of chromatographic peaks associated with detection by said post-column detector, said analysis system including:

a secondary pump system for pumping fluid at a second flow rate substantially less than said first flow rate;

a micro-switching valve unit having a primary input port in fluid communication with said chromatographic column, a primary output port in fluid communication with said post-column detector via a detector tubing, a secondary input port in fluid communication with said secondary pump system;

said micro-switching valve unit having a first, normal position that fluidly couples said chromatographic column and said post-column detector, and a second, peak-parking position that fluidly couples said post-column detector with said secondary pump system instead of said chromatographic column, wherein a portion of the eluent in said detector tubing flows into said post-column detector at said second flow rate when said micro-switching valve unit is in said second, peak-parking position such that individual detection peaks are input more slowly to said post-column detector.

22. (Previously presented) The liquid chromatography system of claim 21, further including a control unit coupled to said post-column detector and said micro-switching valve, wherein said control unit switches said micro-switching valve unit to said second position when a detection peak is sensed by said post-column detector, and to said first position when a said detection peak ends;

said control unit further coupled to said secondary pump to control flow rate thereof as a function of whether said micro-switching valve unit is in said first position or is in said second position.

23. (Previously presented) The liquid chromatography system of claim 22, wherein:

said control unit is coupled to said primary pump and reduces said first flow rate when said micro-switching valve unit is in said second position.

24. (Previously presented) The liquid chromatography system of claim 21, wherein:

said secondary pump system includes a syringe pump; and

said second flow rate is approximately 10% to 50% of said first flow rate.

25. (Previously presented) The liquid chromatography system of claim 21, wherein said liquid chromatography system is selected from a group consisting of (a) a capillary liquid chromatography system, and (b) a nano liquid chromatography system.

26. (Previously presented) The liquid chromatography system of claim 21, wherein when said micro-switching valve unit is in said second position, said control unit controls said primary pump to maintain a substantially constant pressure in said chromatographic column.

27. (Previously presented) The liquid chromatography system of claim 21, wherein said micro-valve unit has an internal volume less than approximately 5 μl.

28. (Previously presented) The liquid chromatography system of claim 21, wherein:

said first flow rate is approximately 50 nl/minute to 400 nl/minute; and

said second flow rate is approximately 5 nl/minute to about 50 nl/minute.

29. (Previously presented) The liquid chromatography system of claim 21, wherein said post-column detector includes at least one of (a) a mass spectrometer, and (b) a nuclear resonance detector.

30. (Previously presented) The liquid chromatography system of claim 21, wherein said liquid chromatography system includes pre-column flow splitting enabling delivery of microflow and nanoflow over said chromatographic column.

31. (Previously presented) The liquid chromatography system of claim 21, wherein when said micro-switching valve unit is in said second position, gradient composition is maintained substantially constant.

32. (Previously presented) The liquid chromatography system of claim 21, wherein when said micro-switching valve is in said second position, said micro-switching valve unit halts chromatographic process by blocking outflow from said column, and when said micro-switching valve is in said second position, inlet flow rate to said chromatographic column is reduced by approximately 50% to about 80% using a pre-column split.

33. (Previously presented) An analysis system for increasing elution time of chromatographic peaks associated with detection by a post-column detector, the analysis system configured for use with a liquid chromatography system having a chromatographic column through which a mobile phase passes as eluent for analysis by the post-column detector, and a primary pump for pumping the eluent through said chromatographic column at a first flow rate, said analysis system comprising:

a secondary pump for pumping fluid at a second flow rate substantially less than the first flow rate of the primary pump;

a valve unit having a primary input port configured for fluid coupling with the chromatographic column, a primary output port for fluid coupling with the post-column detector, and a secondary input port fluidly coupled to said secondary pump, said valve unit having a first, normal mode that fluidly couples said primary input port to said primary output port, and a second, peak-parking mode that fluidly couples said secondary input port to said primary output port; and

a control unit operably coupled with said valve unit and configured to switch said valve unit between said first and second modes dependent upon a signal received from the post-column detector, said control unit configured to actuate said secondary pump when said valve unit is in said second, peak parking mode.

34. (Previously presented) The analysis system of claim 33, wherein said valve unit includes a micro-switching valve unit having a plurality of two-way valves and a plurality of ports between adjacent ones of said two-way valves.

35. (Previously presented) The analysis system of claim 33, wherein said secondary pump includes a micro-syringe pump and said control unit is configured to operate said micro-syringe pump during said second, peak-parking mode, to provide a flow rate of approximately 10% to 50% of the first flow rate.

36. (Previously presented) The analysis system of claim 33, wherein at least one of said valve unit and said control unit are configured to facilitate a substantially constant pressure in said chromatographic column during when said valve unit is in said second, peak-parking mode.

37. (Previously presented) The analysis system of claim 33, wherein at least one of said valve unit and said control unit are configured to substantially maintain a constant gradient composition during when said valve unit is in said second, peak-parking mode.

38. (Currently amended) A method for increasing elution time of chromatographic peaks associated with a post-column detector of a liquid chromatography system, the method including the following steps:

pumping an eluent flow to a chromatographic column at a first flow rate;

directing the eluent flow from said chromatographic column through a valve unit to said post-column detector in a first, normal mode;

monitoring eluent flow through said post-column detector for peaks;

switching the valve unit to a second, peak-parking mode when a peak is detected by said post-column detector;

the valve unit blocking eluent outflow from said chromatographic column during said second, peak-parking mode;

providing a secondary fluid flow at a second flow rate through said valve unit to said post-column detector during said second, peak-parking mode, wherein the second flow rate is substantially less than said first flow rate.

39. (Previously presented) The method of claim 38, wherein said second flow rate during said second, peak-parking mode is approximately 10% to 50% of said first flow rate during said first, normal mode.

40. (Previously presented) The method of claim 38, further including maintaining a substantially constant pressure over said chromatographic column during said second, peak-parking mode.